

REMARKS

The Pending Claims

The pending claims are directed to a system comprising (i) a polishing composition comprising (a) about 0.5 wt.% or more of a source of fluoride ions, (b) about 1 wt.% or more of an amine, (c) about 0.1 wt.% or more of a base, and (d) water, and (ii) an abrasive. Claims 1-17 currently are pending.

Discussion of the Claim Amendments

Claim 1 has been amended to more particularly point out and distinctly claim the subject matter that Applicants regard as their invention. In particular, claim 1 has been amended to recite that the system comprises “about 0.5 wt.% or more of a source of fluoride ions.” This amendment is supported by the claims as originally filed and the specification, for example, at page 3, lines 29-34. No new matter has been added by way of these amendments.

Summary of the Office Action

The Office Action objects to claims 1 and 3 for alleged informalities appearing therein. The Office Action rejects claims 1-12 and 15-17 under 35 U.S.C. § 103(a) as allegedly unpatentable over International Patent Publication Number WO 00/00560 A2 (Steckenrider et al.) (hereinafter “the Steckenrider ‘560 publication”). The Office Action also rejects claims 13-14 as allegedly unpatentable over the Steckenrider ‘560 publication in view of U.S. Patent 5,938,505 (Morrison et al.) (hereinafter “the Morrison ‘505 patent”).

Discussion of the Claim Objections

As noted above, the Office Action objects to claim 1 for an alleged informality appearing therein. Claim 1 has been amended to recite that the system comprises “about 0.5 wt.% or more of a source of fluoride ions,” thereby clarifying that the weight percent range recited in the claim refers to the weight percent of a source of fluoride ions. Accordingly, the objection to claim 1 has been rendered moot by the aforementioned amendment, and Applicants respectfully request that the objection be withdrawn.

The Office Action also objects to claim 3 for an alleged misspelling contained therein. However, upon reviewing the claims set forth in the original application and the “Preliminary Amendment” dated September 11, 2003, Applicants believe that the term “coformed” is spelled correctly in claim 3. As is understood by those of skill in the art, the term “coformed” is used to refer to an abrasive that contains a mixture of two or more abrasives, such as an

abrasive containing particles comprising a mixture of silica and alumina. Accordingly, Applicants respectfully submit that claim 3 need not be amended and request that the objection to claim 3 be withdrawn.

Discussion of the Rejections

As noted above, the Office Action rejects the pending claims as allegedly obvious over the Steckenrider '560 publication alone or in combination with the Morrison '505 patent. Applicants discuss these rejections in detail below.

The Steckenrider '560 publication is generally directed to an aqueous chemical mechanical polishing slurry comprising an abrasive and an alcoholamine. The Steckenrider '560 publication further provides that the polishing slurry can further comprise a buffering agent, such as ammonium bicarbonate. The Steckenrider '560 publication also states that “[o]ther well known polishing slurry additives may be incorporated into the chemical mechanical polishing slurry” (the Steckenrider '560 publication at page 7, lines 13-14). According to the Steckenrider '560 publication, useful additive include surfactants, stabilizers, complexing agents, film forming agents, and inorganic acids or salts thereof, such as sulfuric acid, phosphoric acid, nitric acid, hydrofluoric acid, ammonium fluoride, and ammonium salts, potassium salts, sodium salts, or other cationic salts of sulfates, phosphates, and fluorides (see, for example, the Steckenrider '560 publication at page 7, lines 13-21).

However, contrary to the assertions in the Office Action, the Steckenrider '560 publication does not disclose or suggest a composition comprising the specific combination recited in the pending claims (i.e., a system comprising the combination of fluoride ions, an amine, a base, and an abrasive), much less a system comprising the recited amounts of these components. As noted above, the Steckenrider '560 publication merely lists sources of fluorides ions as being one class of suitable inorganic additives, which inorganic additives are, in turn, listed as being one class of “well known polishing slurry additives” that may be incorporated into the disclosed slurry. Thus, far from specifically teaching or suggesting a slurry comprising a source of fluoride ions, the Steckenrider '560 publication merely mentions a few sources of fluoride ions in a “laundry list” of “well known polishing slurry additives” that could embrace hundreds, if not thousands, of suitable additives. Indeed, after setting forth this laundry list of suitable additives, the Steckenrider '560 publication does not teach or suggest that any particular additive or class of additives is any more suitable than the rest. Furthermore, while the Steckenrider '560 publication does mention that the slurry can contain a buffering agent, such as ammonium bicarbonate, the Steckenrider '560 publication does not teach or suggest that such buffering agent should be combined with a source of

fluoride ions, as recited in the pending claims. Therefore, without more, the Office Action cannot properly assert that the Steckenrider '560 publication would have motivated one of ordinary skill in the art to select and combine the various teachings contained therein in such a way as to arrive at the invention defined by the pending claims.

Moreover, the Office Action appears to be prematurely and improperly shifting the burden of demonstrating the nonobviousness of the claimed subject matter to Applicants. In particular, the Patent Office appears to conclude that the system defined by the pending claims is obvious over the Steckenrider '560 publication because the claimed ranges "are not considered to be critical." However, the Patent Office must first demonstrate that the claimed invention is *prima facie* obvious *before* the applicant must submit evidence showing the criticality of the claimed ranges and/or any unexpected results achieved by the claimed invention. Accordingly, the Patent Office must first demonstrate that the Steckenrider '560 publication teaches or suggests the system defined by the pending claims, which includes evidence demonstrating that one of ordinary skill in the art would have been motivated to modify the slurry disclosed therein by selecting the particular components in the particular amounts recited in the pending claims. As noted above, the Office Action fails to demonstrate that one of ordinary skill in the art, having read the Steckenrider '560 publication, would have been motivated to make the particular combination recited in the pending claims, much less the particular combination using the recited amounts of each component. Thus, the Office Action fails to demonstrate that the claimed invention is *prima facie* obvious over the Steckenrider '560 publication. As a result, Applicants need not submit evidence demonstrating the criticality of the claimed ranges or the unexpected results achieved by the claimed invention.

The Morrison '505 patent does not cure the deficiencies of the Steckenrider '560 publication. The Morrison '505 patent generally discloses a modified CMP slurry formed by combining a basic slurry with a salt of tetramethyl ammonium, a base, and hydrogen peroxide. The Morrison '505 patent further provides that the salt of tetramethyl ammonium preferably is tetramethylammonium fluoride. While the Morrison '505 patent does disclose a polishing slurry comprising an ammonium salt, the Morrison '505 patent does not disclose or suggest a slurry comprising an amine, as recited in the pending claims. Indeed, the Morrison '505 patent specifically teaches that a slurry comprising an amine, such as the trimethyl amines produced by the degradation of tetramethylammonium hydroxide, exhibits poorer performance than the disclosed slurry formed by combining a basic slurry with a salt of tetramethyl ammonium, a base, and hydrogen peroxide (see, for example, the Morrison '505 patent at col. 3, lines 60-62). In other words, the Morrison '505 patent specifically teaches

away from a slurry comprising an amine, as recited in the pending claims. Therefore, the invention defined by the pending claims cannot properly be considered *prima facie* obvious over the Morrison '505 patent. Furthermore, this teaching in the Morrison '505 patent would have specifically discouraged one of ordinary skill in the art from combining the Morrison '505 patent with a reference requiring the use of an amine, such as the Steckenrider '560 publication. Accordingly, the Steckenrider '560 publication and the Morrison '505 patent cannot properly be combined to support a *prima facie* obviousness rejection of the pending claims.

In view of the foregoing, the invention defined by the pending claims cannot properly be considered *prima facie* obvious over the Steckenrider '560 publication alone or in combination with the Morrison '505 patent. The obviousness rejections of claims 1-17 are improper and should be withdrawn.

Conclusion

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,


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